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ABSTRACT

Participants in violent encounters often come from the same age, gender, class, and race groupings. To explore the relationship between racial stratification and violent delinquency, this paper opens with a critical examination of previous research and then presents a conceptual frame that is more specific with regard to these factors. Then, data from the National Longitudinal Study of Adolescent Health (Add Health) are analyzed to highlight the interactional complexity of the relationship between stratification and violence. Add Health data are presented for 134 schools and 9,731 students. The results from robust regression analysis show violence to be the product of a complex process by which social-environment factors combine to influence individual behavior in race- and gender-specific ways. The relationship between economically depressed areas and violent behavior is found to be mediated through available family, social, and economic resources. These findings raise questions about the theoretical underpinnings of research in this area, and encourage thinking about the linkages between race and violence. (Contains 6 tables and 96 references.) (SLD)

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Inequality, Interactional Complexity, and Violent Delinquency: An Exploration of Structural, Family, and Individual Considerations

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Abstract

Over three decades have passed since the defeat of Jim Crow, yet the United States continues to be a dangerous place to live for many poor and racial/ethnic minority citizens. Unlike the brutality witnessed and endured by subordinate racial groups during the majority of this country's existence, participants in violent encounters often come from the same age, gender, class, and race groupings. To make sense of these patterns, I do two things. First, I offer a critical examination of previous work and present a conceptual frame that is more specific with regard to racial stratification and its relationship with violent delinquency. Second, I analyze data drawn from the National Longitudinal Study of Adolescent Health to highlight the interactional complexity of the relationship between stratification and violence. The results from robust regression analysis show violence to be the product of a complex process whereby social-environment factors combine to influence individual behavior in race- and gender-specific ways. These findings raise questions about the theoretical underpinnings of research in this area, and encourage us to think differently about linkages between race and violence.

Inequality Interactional Complexity, and Violent Delinquency:
An Exploration of Structural, Family, and Individual Considerations

Over three decades have passed since the defeat of Jim Crow, yet the United States continues to be a dangerous place to live for many poor and racial/ethnic minority citizens. Unlike the brutality witnessed and endured by subordinate racial groups during the majority of this country's existence, participants in violent encounters often come from the same age, gender, class, and race groupings (see Hawkins 1986; Rose and McClain 1990). The most alarming statistics arguably involve young African-American males. Recent estimates by the Centers for Disease Control and Prevention (1994) indicate that African-American males have a 1-in-21 chance of being murdered before they reach their twenty-fifth birthday. Homicide is the leading cause of death among this group.

Research examining these patterns has generated some important ideas about race and its influence on behavior. However, making sense of disproportionate levels of violent behavior among African Americans continues to be a considerable challenge for researchers. Recent criminological work has pointed out that this line of research has been hindered considerably by the absence of quality data and use of inappropriate statistical techniques (Land, McCall and Cohen 1990; Messner and Golden 1992) as well as theoretical limitations (Bruce 2000a; Bruce, Roscigno, and McCall 1998; Sampson and Wilson 1995). A new wave of research examining the race-violence connection attempts to resolve these issues by finding new sources of data, employing cutting-edge statistical techniques, and constructing conceptual and empirical frameworks showing violence to be linked to macrostructural, normative, familial, and peer factors that are often sensitive to the social environment in which many African Americans exist. Empirical efforts in this regard have proven fruitful as Bruce (2000b) and Bellair and Roscigno (2000) present evidence showing violence to be a consequence of factors at the macro and micro level. These studies are important because they move past some of the problems associated with much of the early work in this area. This research is also important because it encourages theorists to probe more deeply into the relationship between race and violence. What impact, if any, do structural-

level factors have on violent behavior in the presence of family and individual mechanisms? Do factors influencing violence among blacks have the same impact on the violent behavior of their white counterparts?

To address these questions, I do two things. First, I offer a critical examination of previous work and present a conceptual frame that is more specific with regard to racial stratification and its relationship with violent delinquency. Second, I analyze data drawn from the National Longitudinal Study of Adolescent Health to highlight the interactional complexity of the relationship between race and violence. Specifically, the results from robust regression analysis show violence to be the product of a complex process whereby social-environment factors combine to influence individual behavior in race-and gender-specific ways. Such findings raise questions about the theoretical underpinnings of research in this area, and encourage us to think differently about linkages between race and violence.

BACKGROUND

The field of criminology emerges, in part, from attempts to explain deviance among disadvantaged youths (e. g., Cloward and Ohlin 1960; Cohen 1955; Merton 1938; Miller 1958). Much of this early criminological work focused on class stratification. But theorists attempting to understand the link between race and crime founded their research on some of the concepts introduced in the classic work. This line of research has evolved into a large quantitative literature that can be classified into two general categories, cultural and structural (Hagan and Peterson 1995; Hawkins 1985, 1986; Bruce, Roscigno, and McCall 1998). Cultural perspectives assert that value systems for particular groups, typically the poor or African Americans, are qualitatively different from those of the upper classes or whites (Sellin 1938; Sutherland 1934). The disintegration of local institutions (family, religion, schools, etc.) denies disadvantaged group members the opportunity to learn conventional norms and values, including those condemning illegitimate forms of behavior (Auletta 1982; Moynihan 1965; Wolfgang and

Ferracuti 1967). Instead, a delinquent subculture emerges and exists as part of an alternative normative structure for disadvantaged group members.

Structural approaches, on the other hand, explore relationships between social conditions and levels of violence in a given locality. These perspectives suggest that harsh economic, political, and social conditions facing a population account for the disparate rates of criminality (e.g., Blau and Blau 1982; Braithwaite 1979; Golden and Messner 1987; Harer and Steffensmeier 1992; LaFree, Drass, and O'Day 1992; Messner 1982; Messner and Golden 1992; Sampson 1985). Here, the focus moves us beyond characteristics internal to a given group and instead highlights a group's status and material reality in a class- and race-stratified society.

Despite their different approaches to studying the link between race and violence, culturally and structurally oriented researchers employ empirical frameworks that are strikingly similar to one another. Both lines of research tend to investigate the connection between race and violence at the community level. Their models introduce factors influencing rates of offending or victimization for a given SMSA, central city, or census tract.[1] Very few contemporary studies contain models explaining individual-level violence among African Americans.[2] Moreover, culturally and structurally oriented researchers couch their empirical frameworks in the image of a unidimensional scale of problem behavior which affects racial minority groups. For example, most empirical research investigating violence among African Americans uses racial composition, commonly known as %Black, as a proxy for race or culture. The size of the African-American population is presumed to be equivalent to the size of a subpopulation with differing normative characteristics and/or material circumstances. "Percent African American" essentially equates "percent problem people." In short, most empirical models investigating the race-violence relationship neglect the dynamic character of race- or class-based stratification, telling us little about the process through which race leads to interpersonal violence (Alba, Logan, and Bellair 1994; Bruce, Roscigno, and McCall 1998). Consequently, many of these models tend to be conceptually and/or empirically misspecified.

TOWARD A MODEL OF INTERACTIONAL COMPLEXITY

Examining violence among African Americans requires theorists to construct frameworks that more closely represent the social environment in which the group exists. Behavior (including violence) evolves as a response to individual- and structural-level stimuli. Hence, it is important to consider the relationships among structural, family, and individual considerations and violent behavior.

African Americans are often concentrated in places characterized by economic, political, and social disadvantages. Historical and contemporary research clearly show that disadvantages at the level of job and labor market (Blalock 1967; Bonacich 1972; Kirschenman and Neckerman 1990; Olzak 1992; Reich 1981; Syzmanski 1976; Tomaskovic-Devey and Roscigno 1996; Wacquant and Wilson 1989; Wilson 1987), individual and institutional discriminatory practices (Farley and Frey 1994; Massey and Denton 1993; Massey and Gross 1991; Peterson and Krivo 1993; Tomaskovic-Devey 1993), and patterns of economic investment/disinvestment decisions (Logan and Molotch 1987; Molotch 1988; Squires, DeWolfe, and DeWolfe 1979; Squires, Valez, and Taeuber 1991; Wilson 1992) continue to restrict access to economic, political, and social resources. These disadvantages, coupled with structural changes in the economy, trap a sizable portion of the poor and/or racial minority groups in areas characterized by high levels of unemployment, substandard educational resources, inadequate housing, family disruption, and violence (Kasarda 1989; Massey and Denton 1993; West 1993; Wilson 1978, 1987). The chances for upward mobility are slim, relegating residents to spend most of their lives as members of the ghetto poor.

Structural stratification can have a considerable impact on the life experiences of African Americans. It is unlikely, however, that macro-level material forces directly affect violent behavior. Rather, they influence violent behavior through the interaction with and organization of micro-level factors influencing individual violent activity.

Violent activity tends to be concentrated among adolescent and young adult males (see U. S. Department of Justice, 1996: Tables 37 and 39). The relationships between age and violence and gender

and violence have been well established in social science. But it is important to note that their respective influences can be shaped by race and class. Adolescence is a period when males attempt to establish themselves as men (Franklin 1987; Messerschmidt 1986, 1993). Traditional avenues for this type of validation often involve carrying out typical masculine roles (i.e., earning wages from legitimate work). By adolescence, many disadvantaged males have become aware of their material conditions through first-hand experience or observation (Anderson 1999; Bruce, Roscigno, and McCall 1998). As such, the barrage of indicators signifying their powerlessness can adversely affect their social-psychological well-being and lead to despair and nihilism thought to be associated with violence and other forms of serious delinquency (i.e., drug trafficking) (Gibbs 1988; Grier and Cobbs 1968; Majors and Billson 1992; West 1993).

Research has also established that family can have a considerable impact on criminal behavior (see, for example, Gottfredson and Hirschi 1990; Hagan 1989; Hirschi 1969; Loeber and Stouthamer-Loeber 1986; Sampson and Laub 1993). Family structure, family class background, and family functioning are indicative of a family's capacity to monitor behavior, restrict behavior, and/or provide adolescents with experiences that encourage prosocial behavior. As such, families can be important informal social-control agents that discourage criminal behavior.

Families have implications for delinquent behavior; however, it is important to consider that these mechanisms can be influenced by economic, political, and social forces at the macro level. For example, Roscigno and Bruce (1995) and Sampson (1987) suggest that families embedded in areas without economic or social resources are less able to engage in or support activities that place adolescents in monitored environments where they are exposed to life-enhancing behavioral alternatives. In short, the effects of structural disadvantages on violent delinquency can be mediated through or perhaps even amplified by the weakening of family influence.

Disadvantaged areas can also be dangerous areas. Recent urban ethnographies note that violence is a part of the inner-city landscape (e.g., Anderson 1999; 1994; Bourgois 1996; MacLeod 1995;

Pinderhughes 1997). Adolescents living in deprived areas are often exposed to this aspect of urban life through direct observation either as a witness to or participant in a physical altercation. Anderson (1999) and Bruce (2000a) suggest that violence is a tool that can be used to navigate geographical and social space in some economically, politically, and socially deprived communities.

Integrating the factors discussed above into one model allows one to assess the independent effect of structural, family, and individual considerations on violent behavior. But the conceptual frame described above makes it possible to examine the interplay between different sets of factors. As such, the following analysis explores some of the ways structural, intermediate, and individual factors influence and combine to influence violent behavior.

DATA AND MEASUREMENT

The National Longitudinal Study of Adolescent Health, referred to hereafter as Add Health, is used to examine the effects of structural opportunity, family resources, and individual experiences on violent behavior. The Add Health survey was funded by the National Institute of Child Health and Human Development and 17 other federal agencies (Bearman, Jones, and Udry 1997.). Individual data relevant to this analysis were gathered through a self-administered in-school questionnaire and an in-home face-to-face interview. Information about family life, the school that respondents attended, and the communities in which respondents lived was gathered through a survey of parents, school administrators, and official data sources such as the U. S. Census, the Centers for Disease Control and Prevention, the National Center for Health Statistics, the Federal Bureau of Investigation, and the National Council of Churches.

The sample was compiled through a two-stage cluster sampling design. The first stage involved stratifying 80 high schools into clusters by region, urbanicity, school size, school type, and ethnic mix. Once these schools were selected, investigators identified and recruited feeder schools—schools that included the seventh grade and sent their graduates to a high school in the sample. The result of this

recruitment effort was a pair of schools in each of the 80 communities. The total number of discrete schools included in the core study was 134.[3]

The second stage of the sample design involved drawing a sample of adolescents in grades 7 to 12 who either completed an in-school questionnaire or were listed on a student roster provided by each participating school. Students in each school were stratified by grade level and sex. Seventeen students were randomly chosen from each stratum to ensure that each sex and grade-level category was represented in the core sample. This sampling effort produced a nationally representative core sample of the population in grades 7 to 12 (N=12,105).[4] It is important to note that the weighted sample size of the population for this analysis is 9,731. A small fraction of this difference can be attributed to the application of the sample weight designed to compensate for differences among the schools in their probability of inclusion in the Add Health sample. The majority of the difference can be ascribed to the fact that minority groups other than African Americans were excluded from the analysis.[5] Of the remaining sample, approximately 52 percent are women and 20 percent are African American.

Violent Behavior

The primary dependent variable will be an index of violent behavior based upon responses to four questions about violent episodes.[6] All four questions begin with the prompt, "In the past 12 months, how often did you..." This stem is immediately followed by: "get into a serious physical fight," "injure someone badly enough to require bandages or care from a doctor or nurse," "use or threaten to use a weapon to get something from someone," or "take part in a fight where a group of your friends was against another group?" The possible response categories are "never," "1 or 2 times," "3 or 4 times," or "5 or more times." The sum of responses to the aforementioned items, coded 0, 1, 2, or 3 respectively, produces a scale that ranges from 0 to 12 and has a reliability coefficient of 0.72. Violence measures tend to have highly skewed distributions. Consequently, I compensate by analyzing the natural logarithmic transformation of the scale.

Structural Factors

The social and economic contexts in which families, schools, and individuals reside are represented by two primary measures. *Concentrated deprivation* captures economic disadvantage in neighborhoods. This scale consists of percentage below the poverty line, percentage unemployed, percentage without a high school degree. These variables are highly interrelated and load on a single factor using principal components factor analysis with an oblique rotation.[7] The literature inclines one to expect that concentrated deprivation will be positively correlated with violence. Yet it is also expected that much of this effect on violent behavior will be mediated through factors more proximate to individuals.

The second structural indicator is a *youth population density* measure. Specifically, the model includes a variable that accounts for the population density of individuals aged 12–24. Peers have been found to have a substantial impact on antisocial behavior among adolescents. Furthermore, adolescence is the period when individuals are most likely to be violent victims and/or offenders. The expectation is that the density of this at-risk population in an area will increase violent activity through more tangible individual or family factors.

Family and Individual Considerations

Family and individual experiences are also important factors that influence delinquent behavior. Family indicators include family structure measures (*number of siblings* and *nonintact family* – the presence of only one parent in a household) and family class resource variables (*family income* and *parental education*). The number of siblings, the presence of one or two parents in a household, and family income are drawn from questionnaire items about household characteristics.[8] Parental education comes from items asking,"How far did she [mother] go in school?" or "How far did he [father] go in school?" Response categories range from "eighth grade or less" (coded 1) to "graduate training beyond a four-year college or university" (coded 9). I expect sample respondents who belong to large families

and/or families with one parent to have higher levels of delinquent behavior. Each of these household arrangements adversely affects the ability of parents to guard against delinquent behavior, as single parents and parents with numerous children are often afforded less time to supervise the movements and actions of their children (Gottfredson and Hirschi 1990). With regard to family class background, I hypothesize that both family income and parental education will have a negative association with delinquency. That is, individuals belonging to families with class resources will be exposed to numerous socially approved activities that will, in effect, decrease opportunities for participation in delinquency.

The final set of measures involves individual experiences with or exposure to legitimate and illicit activities. The legitimate behavior indicators in this analysis control for the extent to which sample members play sports or work. The *athletic participation* measure is drawn from the question, "During the past week, how many times did you play an active sport, such as baseball, softball, basketball, soccer, swimming or football?" The possible response categories are "not at all," "1 or 2 times," "3 or 4 times," or "5 or more times." *Work participation* is a continuous variable denoting the number of hours an individual spends earning wages on a job. I hypothesize that the conventional behaviors included in the model will have a negative relationship with violent delinquency. Holding down a job or participation in athletics can decrease the opportunities individuals have to engage in conflict that leads to violent confrontation.

With regard to deviant behavior, empirical models will control for the extent to which respondents use alcohol or marijuana, are involved with drug trafficking, or are exposed to violence. The *alcohol use* measure is constructed from an item asking, "During the past 12 months, on how many days did you drink alcohol?" The seven categories range from almost daily to never. I reverse-coded this measure to range from never (coded 0) to almost daily (coded 6) to be consistent across indicators. The *marijuana use* variable comes from a questionnaire item asking respondents to report their marijuana use over a lifetime. Responses range from 0 to 900. The natural logarithmic transformation of this variable is used in the analysis to compensate for skewness. The *drug trafficking* measure is drawn from responses to

the question, "In the past 12 months, how often did you sell marijuana or other drugs?" The *violence exposure* indicator is an index based upon responses to the question, "During the past 12 months, how often did each of the following things happen?" Answers such as "you saw someone get shot," "someone pulled a knife or gun on you," "you got shot or stabbed, " or "someone cut or stabbed you" prompt students to choose the response that applies to them. The response categories are "never," "once," or "more than once." These items are used to construct an additive scale that ranges from 0 to 8 and has a reliability coefficient of .61. I expect individual involvement with illicit activities to be positively correlated with violent delinquency. Specifically, individual experience with criminality either as an offender, victim, or witness increases the likelihood that one will engage in violent activities.[9]

Table 1 reports the means and standard deviations for fighting and the explanatory variables across race- and gender-specific subsamples. Shading denotes statistically significant differences in the race- and gender-specific means below the .05 probability level. The descriptive results with respect to race show that black students are disadvantaged relative to white sample members. At the structural level, black adolescents, on average, live in areas with higher levels of resource deprivation than white teens. Resource inequality is also apparent at the family level. Compared to white sample members, black respondents live in larger families, belong to families with lower incomes, have parents with lower levels of education, and have a greater likelihood of belonging to a single-parent household. At the behavioral level, white students are quite active relative to their black counterparts. On average, white respondents have higher levels of alcohol consumption, marijuana use, work participation, and athletic participation. Black students appear to be more at risk, as they have higher levels of exposure to violence than white respondents. It is also noteworthy that Table 1 clearly shows male and female students to be living in similar social environments. Statistically significant gender differences are only present at the behavior level as males rank higher than females on all of the key individual considerations.

TABLE 1
General and Race- and Gender-Specific Means for Key Variables

	Overall	Black Students	White Students	Male Students	Female Students
Dependent Variable					
(Ln)Fighting	-7.80 (7.14)	-5.97 (7.24)	-8.37 (7.01)	-6.48 (7.29)	-9.19 (6.71)
Structural Considerations					
Resource Deprivation[a]	.039 (1.04)	.959 (1.23)	-.249 (.780)	.029 (1.03)	.048 (1.05)
Youth Population Density	-2.08 (2.12)	-1.90 (1.99)	-3.08 (2.09)	-2.81 (2.13)	-2.79 (2.11)
Family Considerations					
(Ln)Family Income	3.40 (1.75)	3.02 (1.84)	3.51 (1.71)	3.36 (1.91)	3.43 (1.57)
Parents' Education	5.55 (2.01)	5.25 (2.00)	5.64 (2.00)	5.60 (2.00)	5.49 (2.01)
Nonintact Family (1=yes)	.468 (na)	.710 (na)	.392 (na)	.462 (na)	.473 (na)
Number of Siblings	1.32 (1.16)	1.49 (1.37)	1.27 (1.08)	1.32 (1.16)	1.32 (1.16)
Individual Considerations					
Athletic Participation	1.43 (1.14)	1.36 (1.17)	1.44 (1.13)	1.71 (1.13)	1.12 (1.08)
Work Participation	15. 37 (17.52)	10.45 (15.69)	16.91 (17.79)	17.15 (18.49)	13.48 (16.24)
Alcohol Use	1.10 (1.511)	.833 (1.47)	1.18 (1.51)	1.16 (1.59)	1.03 (1.42)
(Ln)Marijuana Use	-10.02 (6.66)	-10.39 (6.32)	-9.89 (6.76)	-9.87 (6.78)	-10.18 (6.54)
Drug Trafficking	.137 (.544)	.144 (.564)	.134 (.538)	.192 (.647)	.078 (.400)
Exposure to Violence	.237 (.874)	.596 (1.11)	.269 (.771)	.465 (1.03)	.221 (.676)
N	9,731	2,193	7,538	4,620	5,111

Note: Shading denotes statistically significant differences below the .05 level. (Standard deviations are in parentheses.)

[a]Resource deprivation is a principal component index including the proportion of families in a census block group below the poverty threshold, total unemployment rate of a block group, and the proportion of the block group population older than 25 who do not have a high school degree.

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ANALYTIC STRATEGY AND RESULTS

This analysis takes a systematic approach to model estimation. The models presented in Tables 2 and 3 establish the plausibility of the idea that the impact of structural mechanisms is mediated through family and individual considerations. In Table 2, each of the family factors is regressed on the structural considerations. Table 3 reports results from regressing individual considerations on resource deprivation and youth population density. This set of analyses illustrates how families and individuals are embedded in and influenced by macro-level mechanisms.

Table 4 contains a series of equations emphasizing how structural- and individual-level factors influence violence. Equation 1 serves as the baseline model of violent delinquency, controlling for gender and race. The second equation introduces the structural variables. Family and individual considerations are added in equations 3 and 4, respectively. The fifth equation represents the full model. This approach to the model estimation provides important information about spatial context and its impact on individual behavior. Specifically, the analysis allows one to determine whether block group characteristics influence violent delinquency directly or indirectly through family and individual considerations.

The descriptive results reported in Table 1 are consistent with previous research suggesting that race and gender are important factors associated with violent behavior. All of the models in this analysis contain race (black =1) and gender (male=1) dummy variables to denote the presence and magnitude of race and gender differences in violent behavior. In the model presented in Table 4, I expect race and gender differences to shrink, but not disappear, as structural, family, and individual factors are considered. Tables 5 and 6 report the results from analysis exploring the extent to which the process specified in this paper varies by race and gender. Specifically, I assess whether the impact of structural, familial, or individual considerations are parallel across race- and gender-specific subsamples.

Model estimation for this analysis requires one to employ multilevel statistical techniques. Correlated errors terms are often a byproduct of hierarchically organized data. I analyze the Add Health

sample of black and white adolescents with a regression technique constructed for clustered data.[10] Robust regression, available in *Stata* (version 5.0), adjusts for clustering within hierarchical structures and produces conservative error terms, guarding against the production of biased estimates and standard errors.[11]

Structural Considerations and Potential Mediating Mechanisms

Tables 2 and 3 present the results from regressing family and individual considerations, respectively, on resource deprivation and youth population density. In Table 2, resource deprivation is found to have an overall adverse effect on family socioeconomic resources. Deprived areas are negatively correlated with family income and parents' education and positively associated with the likelihood of belonging to a nonintact family. The relationship of youth population density to family class background and family structure is not clear-cut. The density of the adolescent population in an area is positively correlated with family income, parents' education, and the likelihood of belonging to a nonintact family. One must be cautious about drawing conclusions about this relationship, because the impact of youth population density on the family measures, net of resource deprivation and population size, may actually be indicative of an urban effect.

Table 3 illustrates that structural factors in this analysis have modest relationships with individual behavior. In general, resource deprivation and youth population density have effects on individual considerations in the expected direction. It is noteworthy that alcohol and marijuana consumption appear to be activities of the affluent. Although seemingly counterintuitive, these finding are in keeping with a growing body of research (see Amoateng and Bahr 1986; Bruce 2000; Christmon 1995; Parker, Weaver, and Calhoun 1995).

The results presented in Tables 2 and 3 indicate that structural characteristics have implications for families and individuals within a given area. Findings along these lines lend support for the idea that the impact of structural factors on violent delinquency is mediated through family and individual

TABLE 2

Robust Linear and Logistic Regression of Family Factors on Structural Considerations (N=9,731)[a]

	(Ln)Family Income	Parents' Education	Nonintact Family[b]	Siblings
Male	-.075 (.042)	.112 (.043)**	-.030 (..046)	-.0001 (.027)
Black	-.253 (.055)***	.246 (.086)**	.872 (.075)***	.205 (.044)***
Structural Considerations				
Resource Deprivation	-.244 (.024)***	-.587 (.040)***	.323 (.036)***	.002 (.020)
Youth Pop. Density	.057 (.014)***	.061 (.018)***	.095 (.014)***	-.001 (.010)
(Ln)Population	.060 (.036)	.001 (.052)	-.072 (.046)	-.069 (.026)**
Intercept	3.24	5.55	.463	1.77
Adjusted R^2	.036	.081	.076	.010

[a]Table entries are unstandardized coefficients. (Robust standard errors are in parentheses.)

[b]Logistic regression is used to compute the coefficients for the Nonintact Family variable.

* $p < .05$, ** $p < .01$, *** $p < .001$ (one-tailed tests)

TABLE 3
Robust Linear and Logistic Regression of Individual Factors on Structural Considerations (N=9,731)[a]

	Athletic Participation	Work Participation	Alcohol Use	Marijuana Use	Drug Trafficking	Exposure to Violence
Male	.583 (.026)***	3.57 (.387)***	.124 (.033)***	.312 (.145)*	.115 (.013)***	.249 (.020)***
Black	-.014 (.037)	-5.18 (.542)***	-.321 (.050)***	-.830 (.207)***	.005 (.019)	.232 (.037)***
Structural Considerations						
Resource Deprivation	-.057 (.015)***	-.647 (.230)***	-.046 (.019)*	-.002 (.085)	-.009 (.008)	.053 (.015)***
Youth Pop. Density	.009 (.006)	-.423 (.111)***	.017 (.018)*	.341 (.039)***	.020 (.003)***	.028 (.005)***
(Ln)Population	-.006 (.021)	-.432 (.325)	.038 (.029)	.315 (.126)**	.020 (.011)*	-.013 (.017)
Intercept	1.20	16.69	.897	-11.27	-.013	.334
Adjusted R^2	.068	.039	.014	.014	.018	.054

[a]Table entries are unstandardized coefficients. (Robust standard errors are in parentheses.)

* $p < .05$, ** $p < .01$, *** $p < .001$ (one-tailed tests)

considerations. Tables 2 and 3 also establish the important distinctions between race and gender stratification. Like Table 1, the results with respect to race clearly indicate that black and white students live in different family environments and have different levels of activity for four of the six possible behaviors. In contrast, male and female students live in similar family contexts, yet they differ considerably across individual considerations. The race and gender coefficients reported in Tables 2 and 3 suggest that race and gender stratification can operate at different levels of analysis. The remaining analysis will assess whether these distinctions alter the processes conducive to violent behavior in race- or gender-specific ways.

Structural, Familial, and Individual Considerations and Violent Delinquency

Table 4 reports robust regression estimates of violent delinquency on structural, family and individual considerations for 9,731 black and white adolescents across the United States. The results clearly show that racial and gender gaps are affected by the presence of structural and individual factors. But the consideration of mediating mechanisms affects each gap differently.

Table 4 demonstrates that a substantial portion of racial differences in fighting diminishes considerably once structural and individual variable are introduced in the model. The addition of block-group-level variables in equation 2 reduces the racial gap in fighting by 27 percent and the presence of individual-level factors in equation 4 closes the racial gap by 21 percent. Hence almost half (48 percent) of the racial difference in violent delinquency is mediated through spatial context and individual exposure or involvement with illegitimate activities.

Unlike the results pertaining to racial differences, the coefficient representing gender differences in violent delinquency changes substantially only in the presence of individual factors. Specifically, the addition of drug trafficking and exposure to violence variables in equation 4 reduces the gender gap in fighting by 29 percent. It is noteworthy, but not surprising given the findings presented in Tables 1 and 2, that Table 4 shows the gender gap to be largely unaffected by the presence of structural and family

TABLE 4

Robust Regression of Violent Behavior on Structural, Family, and Individual Measures for Black and White Adolescents (N=9,731)[a]

	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5
Male	2.75 (.161)***	2.75 (.159)***	2.81 (.157)***	1.95 (.157)***	1.98 (.156)***
Black	2.47 (.209)***	1.80 (.239)***	1.73 (.238)***	1.42 (.223)***	1.42 (.224)***
Structural Considerations					
Resource Deprivation[b]		.414 (.097)***	.063 (.097)	.345 (.091)***	.051 (.091)
Youth Population Density		.124 (.039)***	.137 (.038)***	-.002 (.037)	.021 (.036)
Family Considerations					
(Ln)Family Income			-.003 (.046)		-.026 (.043)
Parents' Education			-.492 (.043)***		-.449 (.041)***
Nonintact Family (1=yes)			.898 (.167)***		.457 (.159)***
Number of Siblings			.042 (.071)		.132 (.065)*
Individual Considerations					
Athletic participation				.375 (.067)***	.438 (.066)***
Work Participation				-.024 (.004)***	-.024 (.004)***
Alcohol Use				.339 (.060)***	.348 (.058)***
Marijuana Use				.097 (.013)***	.090 (.013)***
Drug Trafficking				1.02 (.135)***	1.02 (.133)***
Exposure to Violence				1.88 (.095)***	1.82 (.093)***
(Ln)Total Population		-.067 (.130)	-.043 (.127)	-.115 (.120)	-.090 (.116)
Intercept	-9.80	-8.83	-6.72	-8.71	-6.79
Adjusted R^2	.058	.062	.084	.171	.187

[a]Table entries are unstandardized coefficients. (Robust standard errors are in parentheses.)

[b]Resource deprivation is a principal component index including the proportion of families in a block group below the poverty threshold, total unemployment rate of a block group, the proportion of the block group population older than 25 who do not have a high school degree, and the proportion of female-headed households in a given block group.

* $p < .05$, ** $p < .01$, *** $p < .001$

variables. Unlike different racial groups, men and women are equally likely to exist in any given structural or familial context. Hence, there is no structural or family contextual location differences to impact the gender gap in violent behavior.

Table 4 also provides a glimpse into the manner through which structural factors influence violent delinquency. Equation 2 illustrates that youth population density and resource deprivation have a positive relationship with fighting. But subsequent equations suggest that the effects of these structural variables are mediated through family and individual factors. In the presence of these family variables, the resource deprivation coefficient shrinks by 85 percent and is no longer statistically significant. This finding, coupled with the results depicted in Tables 1 and 2, suggests that the effects of harsh material conditions on violent delinquency are mediated through family economic and social resources.

Similarly, the introduction of individual considerations in equation 4 reduces the youth population density by over 90 percent. This finding suggests that the effect of youth population density operates primarily through individual contact with illegitimate activities as participants or witnesses. In sum, the results suggest that area characteristics have implications for violent behavior through factors more proximate to adolescents.

The results depicted in Table 4 illustrate the importance of family economic and social resources for violent behavior. Equations 3 and 5 show that families headed by parents with higher levels of education have children who tend to fight less. One can conclude from this result that highly educated parents possess cultural capital that can provide access to activities that restrict opportunities to engage in violent behavior. Family structure is another family characteristic shown to be an important factor associated with fighting. Although nearly half of its impact on fighting is mediated through individual considerations, individuals who belong to nonintact families are still more likely to fight than those belonging to intact families. This finding suggests that nonintact families have social control resources strained to a point where adolescents may be free to engage in dangerous activities or to be in areas where violence can occur.

Equations 4 and 5 demonstrate that both legitimate and illicit behaviors impact violent activity. The results regarding conventional activities are somewhat surprising. The results in Table 4 show that participation in societal-endorsed behavior does not necessarily prevent deviant activity. Athletic participation, for example, has a positive relationship with violent delinquency. Behaviors at opposite ends of the criminality continuum can have common or shared properties. Aggression is a part of sport and violence. It may be the case that aggression associated with sport makes an individual susceptible to violent behavior.

Work participation, in contrast, has effects in the expected direction. The negative relationship between working and violent behavior illustrates how engaging in conventional behaviors or association with legitimate institutions can discourage violent delinquency. Fighting can certainly jeopardize future earnings; however, work also occupies a substantial amount of time, lessening the possibility of being faced with a violent confrontation.

Illicit activities, as expected, are found to be positively correlated with violent delinquency. The sign of the alcohol use and marijuana use coefficients suggests that these behaviors can place individuals at risk for serious injury. Intoxication, regardless of the source, can impair one's rational faculties. A source of minor conflict between sober individuals can spark violent conflict under the influence of alcohol or marijuana. Drug trafficking and exposure to violence are two of the more important factors associated with violence. Equations 4 and 5 support prevailing ideas about involvement with the underground economy. Order in the drug economy is maintained through brute force and intimidation (Messerschmidt 1993; Williams 1989). Therefore, drug dealing as an enterprise can increase the likelihood that dealers will engage in violence. Similarly, the direction and magnitude of the exposure to violence coefficient supports the idea that violence breeds violence (Butterfield 1996; DuRant et al. 1994). This study cannot isolate the source of the violence; however, the results in equations 4 and 5 can serve as the impetus for future sociological inquiries into the relationship between being a witness to or a victim of violence and violent delinquency.

The findings in Table 4 provide support for the idea that variables with the most substantial direct impact on violent delinquency are those most proximate to adolescents. Results along this line are consistent with earlier work (see Bruce 2000b). However, this research makes a contribution to the study of stratification and crime through the development and testing of an empirical model spanning multiple levels of analysis. Until recently, researchers have introduced conceptual frameworks outlining the manner through which structural factors influence individual behavior without submitting the conceptual frame to empirical test.[12] The model in Table 4 provides a glimpse into the process by which macro-level mechanisms can influence violent delinquency through more proximate family and individual considerations.

Interactional Complexity and Its Impact on Violent Delinquency

Table 4 reveals the presence of substantial race and gender differences in violent behavior. Although important, these findings tell us very little about race and/or gender and their impact on the process(es) leading to violent delinquency. The following paragraphs report the results from a series of analyses designed to explore the extent to which the processes conducive to violent behavior vary by race and gender.

The analysis begins with the introduction of race-, gender- and race*gender-specific interaction terms to a trimmed version of equation 5 presented in Table 4.[13] These interaction terms are introduced in blocks and the interaction term coefficients are subjected to a Wald test to assess their significance.[14] The post-estimation procedure generates an F statistic for each block of interaction terms. The F statistics for the race-specific, gender-specific, gender*race-specific, and full models are 2.79 (.01 critical α= 2.32), 2.71 (.01 critical α= 2.32), 2.91 (.01 critical α= 1.88), and 3.02 (.01 critical α= 1.70), respectively. Each block of interaction terms has a significant impact on the model, lending additional support to the idea that processes leading to violence can vary by race and gender.

Tables 5 and 6 report the results of an attempt to explore the extent to which processes leading to violence are different for black males, white males, black females, and white females. This segment of the analysis begins with the estimation of models for the race*gender specific subsamples that are identical to the full model presented in Table 4 (equation 5). Key findings are presented in Table 5. To substantiate model comparison across the subsamples, I introduce a series of three-way interaction terms to a model substituting race*gender dummy variables (e. g., black male) for the race and gender dummies. I then subject relevant blocks of interaction terms to a Wald test of significance.[15] The results from this analysis show that the impact of many of the factors in the model are parallel across the race*gender specific subsamples.

Table 6 reports the pairwise coefficient comparisons for individual considerations having effects that vary across the models presented in Table 5. Athletic participation is positively correlated with violent delinquency in each subgroup, but it is found to have substantial significance for black females relative to white female and males. These distinctions may be a function of differences in the type of athletic activity available to and engaged in by black females and their white counterparts.

The pattern of coefficient differences for alcohol use can be linked to race. Alcohol consumption appears to have a profound impact on white students as compared to black students. The results pertaining to marijuana use also have a racial pattern of coefficient differences; however, the direction of these distinctions is opposite to those for alcohol use. Marijuana consumption has more of an impact on the violent delinquency of black respondents, especially black females, relative to their white counterparts. Illicit substance use leads to violent behavior; however, the opposing patters of coefficient differences may be due to racial distinctions in alcohol or marijuana use.

Exposure to violence has a strong correlation with violent delinquency in each of the models presented in Table 5. But being a witness to or being a victim of violence has greater implications for the violent delinquency of white females relative to the other three groups. It is also noteworthy that exposure to violence plays a more prominent role in the process leading to violence for white males than for black

TABLE 5
Robust Regression of Violent Behavior on Family and Individual Measures across Race- and Gender-Specific Samples[a]

	Black Males (N=996)	White Males (N=3624)	Black Females (N=1197)	White Females (N=3914)
(Ln)Family Income	.040 (.135)	-.035 (.060)	-.011 (.101)	-.019 (.069)
Parents' Education	-.287 (.116)***	-.460 (.071)***	-.601 (.110)***	-.400 (.058)***
Nonintact Family	.141 (.538)	.404 (.265)	.779 (.476)*	.483 (.240)*
Number of Siblings	.367 (.183)*	.085 (.109)	-.046 (.162)	.159 (.113)
Athletic participation	.705 (.217)***	.456 (.111)***	.902 (.194)***	.278 (.103)***
Work Participation	.001 (.014)	-.026 (.007)***	-.026 (.014)*	-.029 (.006)***
Alcohol Use	.001 (.159)	.473 (.087)***	.039 (.171)	.438 (.092)***
Marijuana Use	.154 (.038)***	.086 (.020)***	.193 (.039)***	.037 (.020)*
Drug Trafficking	1.31 (.239)***	.843 (.197)***	1.42 (.454)***	1.17 (.300)***
Exposure to Violence	1.38 (.160)***	1.82 (.139)***	1.71 (.299)***	2.63 (.236)***
Intercept	-3.04	-6.11	-4.65	-6.82
Adjusted R^2	.18	.15	.16	.13

[a]Table entries are unstandardized coefficients. (Robust standard errors are in parentheses.)

* $p < .05$, ** $p < .01$, *** $p < .001$

TABLE 6
Relevant Pairwise Coefficient Comparisons across Race- and Gender-Specific Samples

	Athletic Participation	Alcohol Use	Marijuana Use	Exposure to Violence
Black Males				
White Males	.249 (1.02)	-.472 (-2.60)	.068 (1.58)	-.440 (-2.08)
Black Females	-.197 (.677)	-.038 (-.163)	-.039 (-.716)	-.330 (-.973)
White Females	.427 (1.78)	-.437 (-2.37)	.117 (2.73)	1.25 (-4.38)
White Males				
Black Females	-.446 (-2.00)	.434 (2.26)	-.107 (-2.44)	.110 (.334)
White Females	.178 (1.18)	.035 (.276)	.049 (1.73)	-.810 (-2.96)
Black Females				
White Females	.624 (2.84)	-.399 (-2.06)	.156 (3.56)	-.920 (-2.42)
F	3.458	3.55*	5.55***	6.69***

Note: Shading denotes statistically significant differences below the .05 level.

[a]Table entries represent differences in unstandardized coefficients. (T-values are in parentheses.)

* $p < .05$, ** $p < .01$, *** $p < .001$

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males. Since racial minorities, the poor, and males are among the groups most likely to be exposed to violence, the patterns of coefficient difference may be a product of desensitization: violence can be a part of the social landscape and have a smaller impact on violent behavior among those exposed to violence relative to those having little or no exposure.

Tables 5 and 6 demonstrate that the impact of athletic participation, illicit substance use, and exposure to violence on violent delinquency can vary by race and gender. Identifying the factors distinguishing groups from one another is important, but such an investigation goes beyond the scope of this paper. The results in Table 5 and 6 are significant, however, because they provide a glimpse into the complexity associated with race and gender and their implications for individual behavior.

CONCLUSION

Violence is a serious morbidity and mortality concern for adolescents, especially those belonging to disadvantaged groups. Making sense of violent behavior among groups such as African Americans has proven to be a challenge for theorists. Meeting and eventually overcoming this challenge involves the development and testing of models that are more explicit with regard to stratification and its relationship with violent delinquency. To this end, I draw from recent work (i. e., Bruce 2000a, 2000b; Bruce, Roscigno, and McCall 1998, Elliott et al. 1996, and Sampson and Wilson 1995) to construct and test a model depicting violence as the result of stratification mechanisms operating at different levels of analysis.

The results from this study are important because they support earlier ideas about the relationship between stratification and crime. As in Bruce (2000b), African Americans are found to have fewer available economic and social resources than their white counterparts. These differing social environments appear to be pertinent, because the introduction of structural and individual-level measures closes some of the racial gap in violent behavior. Males and females, in contrast, tend to be located in

similar structural and familial environments. Hence, the gender gap in violent delinquency closes with the addition of individual-level factors. Social class is also associated with violent delinquency, albeit indirectly. Specifically, the relationship between economically depressed areas and violent behavior is found to be mediated through available family social and economic resources.

The results from this analysis also raise a number of interesting questions about the manner in which race, gender, and class are correlated with violent behavior. Independently, the findings for race, gender, and class and their relationships with violent delinquency are consistent with previous work. But, the analysis presented in Tables 5 and 6 shows that these axes of stratification interact in ways that have consequences for violent delinquency. A more complete examination of such patterns will require researchers to develop conceptual and empirical models that consider multiple axes of stratification, their interaction, and their relationship with violent delinquency.

This research extends our knowledge about the relationship between stratification and delinquency or crime, yet leaves considerable room for conceptual and methodological development. Theoretically, the models represent fairly conservative depictions of the social environment. Since violence tends to be concentrated among young males, it may be fruitful to consider masculinity as an important factor influencing violent delinquency. It may be the case that violence is a means through which young males assert their manhood. Furthermore, criminal behavior is only one dimension of adolescent life. Perhaps a more adequate examination of this form of adolescent behavior comes with a serious consideration of legitimate behavioral outcomes.

Methodologically, the models are limited in two ways. One limitation involves the lack of peer measures. Peers are important because they serve as the specific other with whom individuals can gain and maintain respect. To be recognized as a member of a particular group, individuals often tailor their behaviors to parallel the attitudes and actions of the designated group. If the peer group holds a behavior such as violence in high esteem, its members, especially those with marginal status, will be more likely to

commit violent acts to show they belong. As such, the incorporation of peer indicators could produce models that yield more robust results.

The other, perhaps more serious, methodological limitation involves specification. Relationships between structural, family, and individual factors and criminal behavior can be reciprocal. That is, large numbers of families that are not effective in controlling their younger members and high levels of criminal activity in any given area can adversely impact structural factors such as area investment/disinvestment patterns. Unfortunately, the structure of the data does not lend itself to longitudinal analysis, making it impossible specify potential reciprocal effects.

Endogeneity is also a potential problem. With cross-sectional data, it is impossible to determine the temporal ordering of events. For example, violent behavior could precede alcohol or marijuana use. As such, the reader should be cautious about drawing causal inferences from this analysis.

Despite these limitations, this study lays the foundation for future research in two important ways. The successful integration of macro- and micro-level factors in one empirical framework establishes the plausibility of multilevel modeling, thereby facilitating a tighter connection between conceptual frames and the empirical models emerging from them. This research also provides a glimpse into the complex relationship between stratification and crime. Rather than debating which axis of stratification is more relevant to violence, it may prove more fruitful to consider how race, gender, and class independently and interactively influence behavioral outcomes.

Notes

[1]For an exhaustive review of this work prior to 1990, the reader should consult Land, McCall and Cohen (1990). For an thorough review of the work published after 1990, the reader should consult Phillips (1997).

[2]According to Matsueda and Heimer (1987), the paucity of research pursuing the race-crime relationship at the individual level is linked to the lack of data at the individual level and the questionable validity of responses by African Americans to questions about violent behavior. However, recent work by Joseph (1996), Paschall, Flewelling, and Ennett (1998), and Tatum (1996) represents a growing body of researchers investigating violence among African Americans at the individual level despite the problems associated with quantitative research using self-report data.

[3]Some of the schools in the sample spanned grades 7 to 12 , thereby functioning as their own feeder school. The "pair" in this case was a single school.

[4]Respondents not included in the core sample represent oversampled populations often overlooked in large-scale surveys (i.e., African-American adolescents who had at least one parent with a college degree, Chinese adolescents, Cuban adolescents, Puerto Rican adolescents, sibling pairs, and the disabled).

[5]This not to say that the theoretical approach presented here cannot be used for understanding criminal behavior among other racial groups (e.g., Martinez 1996; Rodriguez 1990). It certainly can. However, the study of group-specific patterns must be supplemented with auxiliary information about the historical and political nuances of race and class stratification that may vary across group or place. For further elaboration, see Tomaskovic-Devey and Roscigno (1996).

[6]It is noteworthy that this study departs from most research examining the race-violence connection because it analyzes violence at the individual level rather than the aggregate level. Self-report data are used for two reasons. First, less severe types of violence occur much more frequently than outcomes (e. g., homicide) typically examined in aggregate studies (Centers for Disease Control and

Prevention 1994; Paschall, Flewlling and Ennett 1998; Snyder and Sickmund 1995). Second, fighting is recognized as a precursor to more severe types of violence (Elliott 1994).

[7]See Land, McCall and Cohen (1990) or Sampson, Morenoff, and Earls (1999) for further elaboration.

[8]The family income variable is highly skewed. To compensate, the models contain the natural logarithmic transformation of this variable.

[9]It is important to note that the exposure to violence measure is a crude indicator. Its relationship with fighting may also be considered by some to be endogenous. In this analysis, however, the results from factor analysis (results available upon request) and the correlation coefficient of .31 suggest that these scales are empirically distinct.

[10]Many researchers employ hierarchical linear (or logistic) modeling (HLM) techniques to analyze hierarchically-organized data (see Roscigno 1998, 2000; Rountree, Land, and Miethe 1994). Using these statistical procedures would be problematic in this analysis because each block group, on average, contains two students, a number too small for reliable within- and across-block group variance estimation.

[11]For an in-depth discussion of this technique, the reader should consult Statcorp (1997).

[12]See Bellair and Roscigno (2000), Gottfredson, McNeil and Gottfredson (1991) and Sampson, Raudenbush, and Earls (1997) for recent examples of multilevel criminological research.

[13]In an effort to present the cleanest and most parsimonious model, the trimmed model contains only the family- and individual-level variables, since the structural and control variable are not statistically significant in the full model (equation 5).

[14]Each block contains ten interactions terms. For example, the race-specific block contains a race*family income, race*parental education, race*intact family, race*sibling, race*athletic participation, race*work participation, race*alcohol use, race*marijuana use, race*drug dealing, and race*exposure to violence interaction terms.

[17]Each block contains three interactions terms centered around an explanatory variable. To assess whether income effects, for example, are parallel across the models, I introduce black male*family income, white male*family income, and black female*family income interaction terms. White females serve as the baseline.

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